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A SEARCH FOR
SPEYERIA NOKOMIS COERULESCENS
(HOLLAND) (NYMPHALIDAE)
IN SOUTHERN ARIZONA

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IN HIS PAPER ON ARIZONA BUTTERFLIES, Dr. Keith S. Brown Jr. (1965) cites the occurrence of *Speyeria nokomis coerulescens* (Holland) in a spring-fed meadow in the upper Huachuca Mountains. The sight record reported therein provided the stimulus that prompted the author to search the Huachucas in an attempt to relocate the meadow, and hopefully, verify the existence of this subspecies in the continental United States. A few vague lines penned by Holland (1931) seemed to reinforce the possibility of a still-viable colony somewhere in that southern Arizona range.

During his five years of intensive field work, from 1967 to 1972, the author has also corresponded extensively with Dr. Brown in an attempt to glean every bit of information concerning the possible location of the meadow and the circumstances surrounding the insect's occurrence. The author is deeply indebted to Dr. Brown for his vivid recollections and unselfish responses to the author's many letters. Though Dr. Brown had been unable to relocate the meadow, himself, on other occasions since the first sighting, he did remember some very important facts which eventually led to the discovery of the meadow by the author in early September of 1971.

Concurrent with the search for the meadow noted by Dr. Brown, the author corresponded extensively with several lepidopterists in order to gain additional information on the habitat and possible flight period of *coerulescens*. This was done in an effort to locate additional suitable sites in the Huachucas where, hopefully, a colony of *coerulescens* might still exist. The author is grateful to Paul Grey, Lincoln, Maine; Dr. Lee

D. Miller, Sarasota, Florida; Lloyd M. Martin, Prescott, Arizona; R. F. Sternitzky, Hereford, Arizona; Kilian Roever, Phoenix, Arizona; F. M. Brown, Colorado Springs, Colorado; Harry Clench, Pittsburgh, Pennsylvania; Fred Thorne, El Cajon, California and Darrel K. Whipple, Park Ranger, Coronado National Memorial, Arizona. Through their letters and personal conversations, these persons rendered invaluable aid to the author and enabled him to properly assess the field conditions under which one may encounter *coerulescens*.

It has definitely been established that members of the genus *Speyeria* utilize various species of *Viola* as the larval foodplants (Mattoon, Davis and Spencer, 1971). In the arid Southwest, the occurrence of violets is almost wholly dependent upon an abundant, unfailing supply of fresh water coupled with mild summers and cold winters. Such suitable conditions in Arizona are rarely found much below 5,000 feet of elevation. Indeed, as an indicator of suitable conditions, the author has never encountered *Speyeria atlantis nausicaa* (Edwards) below that elevation.

In the basin and range province of Arizona, of which the Huachuca Mountains form a part, the chances of finding a colony of *coerulescens* will be dependent upon discovering suitable habitats harboring violets. Permanent water sources are rare in these mountains and abundant precipitation is confined to the higher elevations above 7,000 feet where winter moisture, in the form of snow, may persist through the earlier, drier parts of the year. Thus, along with the search for Dr. Brown's *coerulescens* meadow, the author investigated several potential sites during the months of August through November, 1967 to 1972. The results of these surveys have been negative.

A prime site has been a very wet, spring-fed sedge and horsetail meadow at the top of the box in Ramsey Canyon. In the understory, violets form a lush, dense mat. This site has been visited on several occasions during the months previously noted with no signs of *Speyeria* adults or larvae evident. A reconnaissance of several additional springs made it necessary to hike almost the entire length and breadth of the Huachucas, but did enable the author to secure an intimate, first-hand knowledge of this very interesting range. Practically all of the springs are unsuitable as a *coerulescens* habitat. Most were devoid of violets, or in deep shade, or mere seeps on bare rock or were tapped and the water diverted to a concrete tub or similar container.

Some key clues to the possible location of the meadow at the "top of Sunnyside Canyon" are to be found in two letters from Dr. Brown to the author dated October 26 and November 16, 1969, respectively. He stated that, "The colony was in a wet, very green-grass meadow with a concrete horse watering trough in the middle, already in the pine or fir belt, which is the standard halfway stopping place on the main trail to Miller Peak, probably no more than a couple of hours above where the trail leaves the canyon bottom and heads up the hill." He also stated that, "The area was *definitely* in the pines or firs, an open flat conifer-surrounded and very green area, not more than 100 feet square, *inside* forest."

There is a meadow at the top of Sunnyside Canyon at about 8,400 feet of elevation at the junction of the Miller Peak (Crest) and Sunnyside Canyon Trails. This meadow has been investigated by others, also. It does not contain a horse trough and is quite dry despite the abundance of flowers.

Working with a topographic map of the area (Sunnyside, 1:24,000), the author had suspected the area to the north of Pat Scott Peak, just below the saddle at the top of Pat Scott Canyon in Section 18, T23S, R20E, to be the site of the *coerulescens* sighting some 21 years ago. In following the very obscure trail northward from the main trail junction, the author encountered very little evidence of man's pervious use. Indeed, for the most part, this trail appeared unused and little remained of the trail signs. A broken, barely legible sign indicated this trail to be the Canelo Trail. It presently enters the Military Reservation at the head of Sawmill Canyon but the author did not follow it to its terminus.

There is a meadow at the suspected area which fulfills all of Dr. Brown's vivid recollections and descriptions. Color slides of the area were taken on 1 September 1971 and prints sent to Dr. Brown. He positively identified (in litt.) the meadow from these prints. No *Speyeria* were seen in this meadow on that date, nor were any seen on a subsequent visit a week later.

Workers familiar with *nokomis* subspecies may well question the expectation of finding *coerulescens* in flight on an earlier date. Indeed, the author had repeatedly queried Dr. Brown about his early August sighting. However, the vivid events surrounding the sighting in 1950 were recounted to the author in detail in later letters and, there is very little reason to doubt this insect's occurrence on that early date.

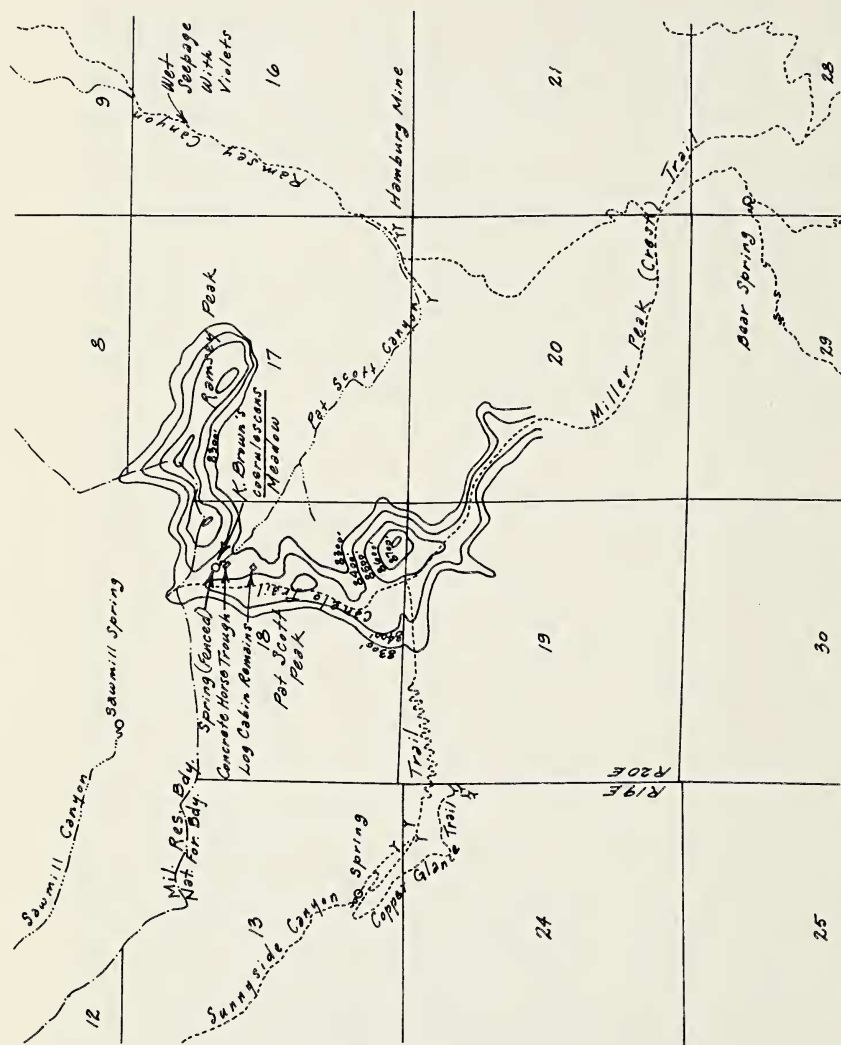


Fig. 1.—Trail Map of the upper Huachuca Mountains, Sunnyside Quadrangle, showing the location of the rediscovered *coeruleus* meadow cited by Brown (1965). All trails hereon have been hiked by the author.

After a wait of one year, the author revisited the Huachucas on 28 July 1972 in the company of his son, Dale. There had been heavy rains in the mountains during the previous weeks, breaking an extended period of drought in that part of Arizona. Our hike up the tortuous Sunnyside Canyon Trail on 29 July was favored with beautiful, clear, sunny skies and the air temperature was not unduly warm. We arrived in the meadow at 9:30 A.M. (M.S.T.) and remained until 11:30 A.M., during which time, in bright sunlight, we investigated the site for adult *Speyeria* and violets. We did not find either. In fact, the spring was not flowing and the meadow was bone-dry. The only water to be found was in the horse trough and it appeared several weeks stagnant. We walked through the meadow a number of times during our stay and followed the run-off channel to the very brink of the canyon, where the flowage cascades over a precipitous cliff. We also waited a short duration at this point hoping for the possibility of seeing wandering males. None were seen.

Over the past twenty years there has been a marked drying trend in the Southwest. Many former permanent water sources have either dried up or are now only seasonal. Also, in some instances, former wet-meadow areas have become invaded by surrounding forest. Such invasions may contribute to the drying trend due to tree roots tapping the moisture source and lowering the water table. Was Dr. Brown's *coerulescens* meadow a victim of such a circumstance? The author is not able to say. There is, however, juvenile growth of pines and spruce now within the upper portion of the meadow, which may not have existed at the time of Dr. Brown's pack trip visit some 21 years ago. We could find no evidence of this meadow having been altered by any human agency in the intervening years.

The question now arises, does *coerulescens* still exist at the meadow? The visible absence of violets and surface water there does not seem to favor such a possibility. Could the adults seen by Dr. Brown have wandered into the meadow from another area, or areas? Such an occurrence is still a possibility even though *nokomis* females are generally not known to stray far from the larval foodplants. There are still many areas in the Huachucas not investigated by the author and there is great hope that, hidden somewhere in a favorable canyon, a colony of *coerulescens* still exists.

Does *coerulescens* still exist as a viable entity somewhere in Arizona? It is hoped that it does. The last known colony,



Fig. 2.—Concrete horse trough, *coerulescens* meadow, upper Huachuca Mountains, September 1971



Fig. 3.—Looking northwest toward the spring and the upper end of the *coeruleus* meadow, September 1971.

from which actual specimens have been collected, existed near the top of Mount Lemmon in the Santa Catalinas. The author, as well as others, has visited this site on several occasions with negative results. Also investigated by the author is a meadow on the north slope of Mount Hopkins, very near the summit, in the Santa Ritas. It, too, proved unfavorable.

In later years attention has been focused on the Chiricahua Mountains. There are many suitable areas in this well-watered, extensive range that merit investigation.

Inasmuch as subspecies of *nokomis* are highly cyclical, it will probably take a combination of all of the proper ingredients and a strong dose of luck to rediscover *coerulescens* in Arizona. The author sincerely hopes that some of the information given herein will be of benefit to current and future workers and welcomes an exchange of ideas from interested parties.

LITERATURE CITED

- BROWN, KEITH S., JR., 1965. Some comments on Arizona butterflies (Papilionidae). *Journ. Lepid. Soc.* 19: 107-115.
- HOLLAND, W. J., 1931. The Butterfly Book (revised edition). Doubleday & Co., Garden City, New York, 424 pp.
- MATTOON, S. D., R. D. DAVIS & O. D. SPENCER, 1971. Rearing techniques for species of *Speyeria* (Nymphalidae). *Journ. Lepid. Soc.* 25: 247-256.